UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF COMMERCIAL FISHERIES

CALIFORNIA FISHERY MARKET NEWS MONTHLY SUMMARY

December 1964

PART II–Fishing Information*

Sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists

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Sea Surface Temperature Charts, Eastern Pacific Ocean, December 1

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SEA SURFACE TEMPERATURE CHARTS, EASTERN PACIFIC OCEAN

DECEMBER 1964

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U.S. Weather Bureau, San Diego, California

U.S. Naval Communication Station Balboa, Fort Amador, Canal Zone

U.S. Weather Bureau Port Meteorological Office, Cristobal, Canal Zone

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Lifeguard Headquarters, Newport Beach, California

Pacific Oceanographic Group, Nanaimo, British Columbia, by H. J. Hollister from observations by R. Collins at Quatsino Lightstation; T. Quon at Cape St. James Light; R. Stuart at Amphitrite Point Light; W. E. Redlac at Langara Island Light

Scripps Institution of Oceanography, La Jolla, California by Margaret Robinson and Hans Klein

Charts

Figure 1.--Mean sea surface temperatures (°F) derived from approximately 8000 observations. Squares show temperatures at weather-ship stations. Numerals on shore are temperatures at coastal and light-ship stations.

Figure 2.--Deviation of sea surface temperatures (°F) from long term charts of H.O. 225. Hatched areas are colder than mean.

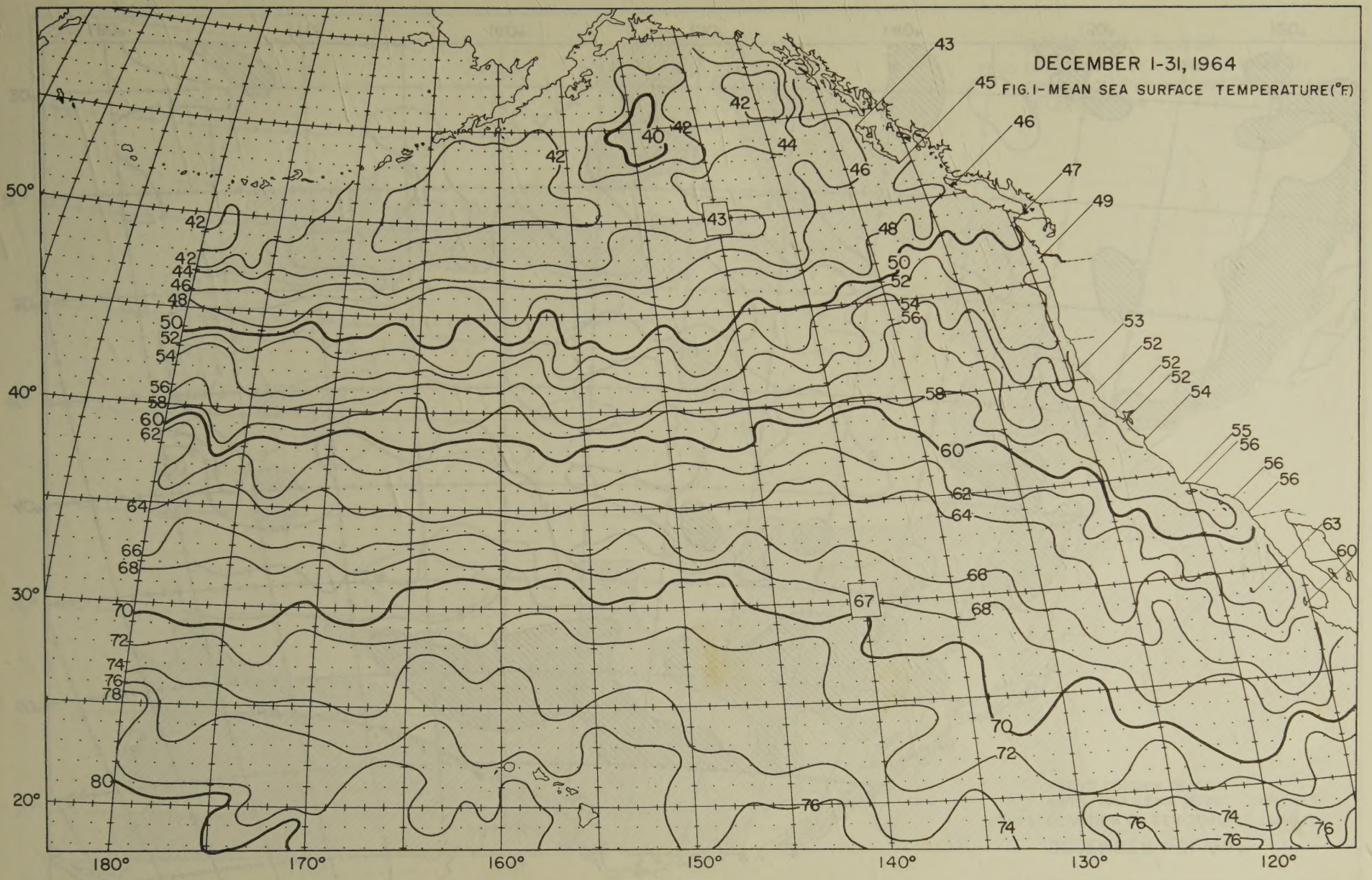
Figure 3.--Deviation of sea surface temperatures (°F) from those of December 1963. Hatched areas are colder than 1963.

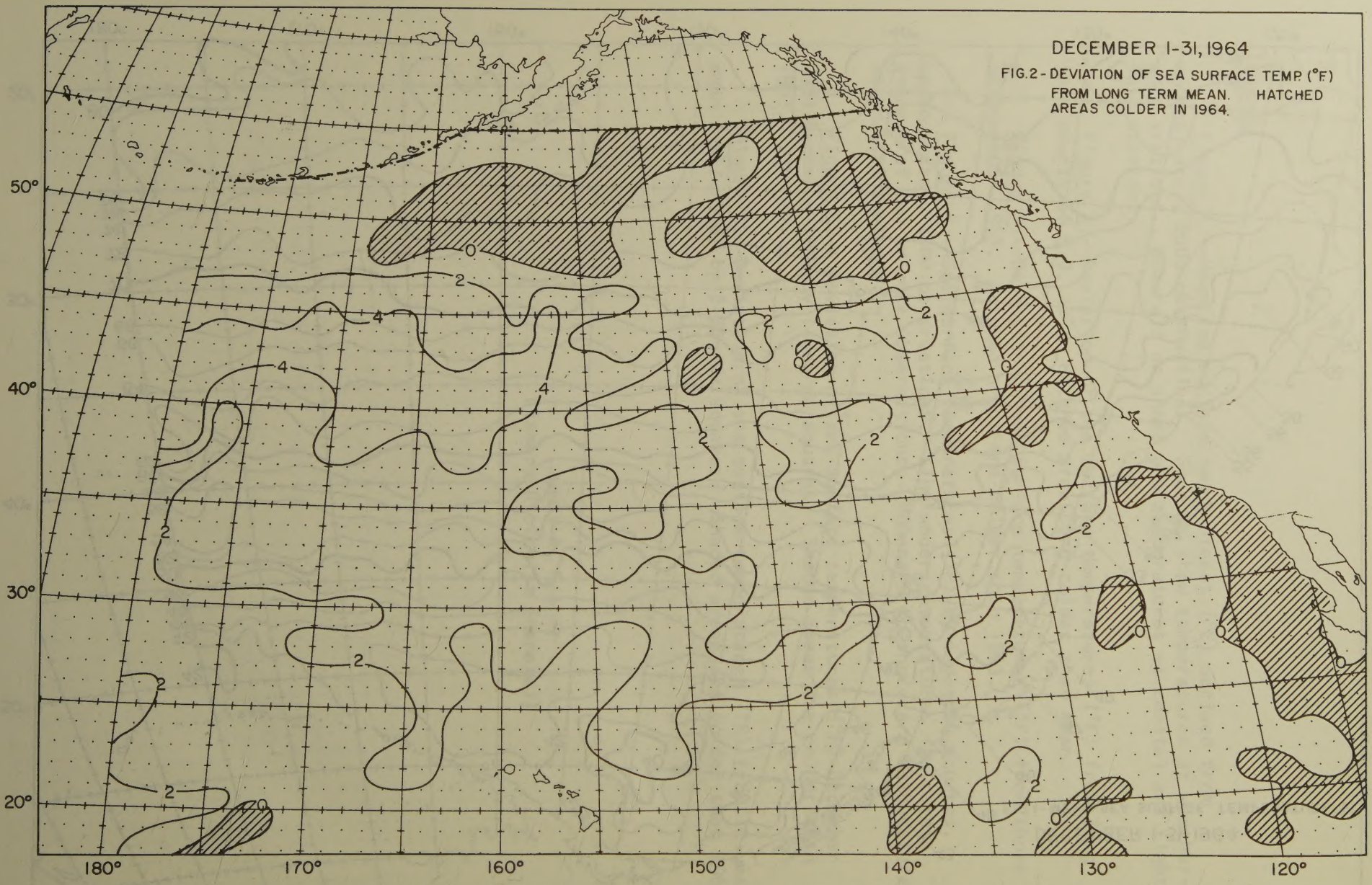
Figure 4.--Sea surface temperatures (°F) by 1-degree squares, approximately 2000 observations. Line under temperatures indicates average of two or more observations. Numerals on shore are temperatures at coastal stations.

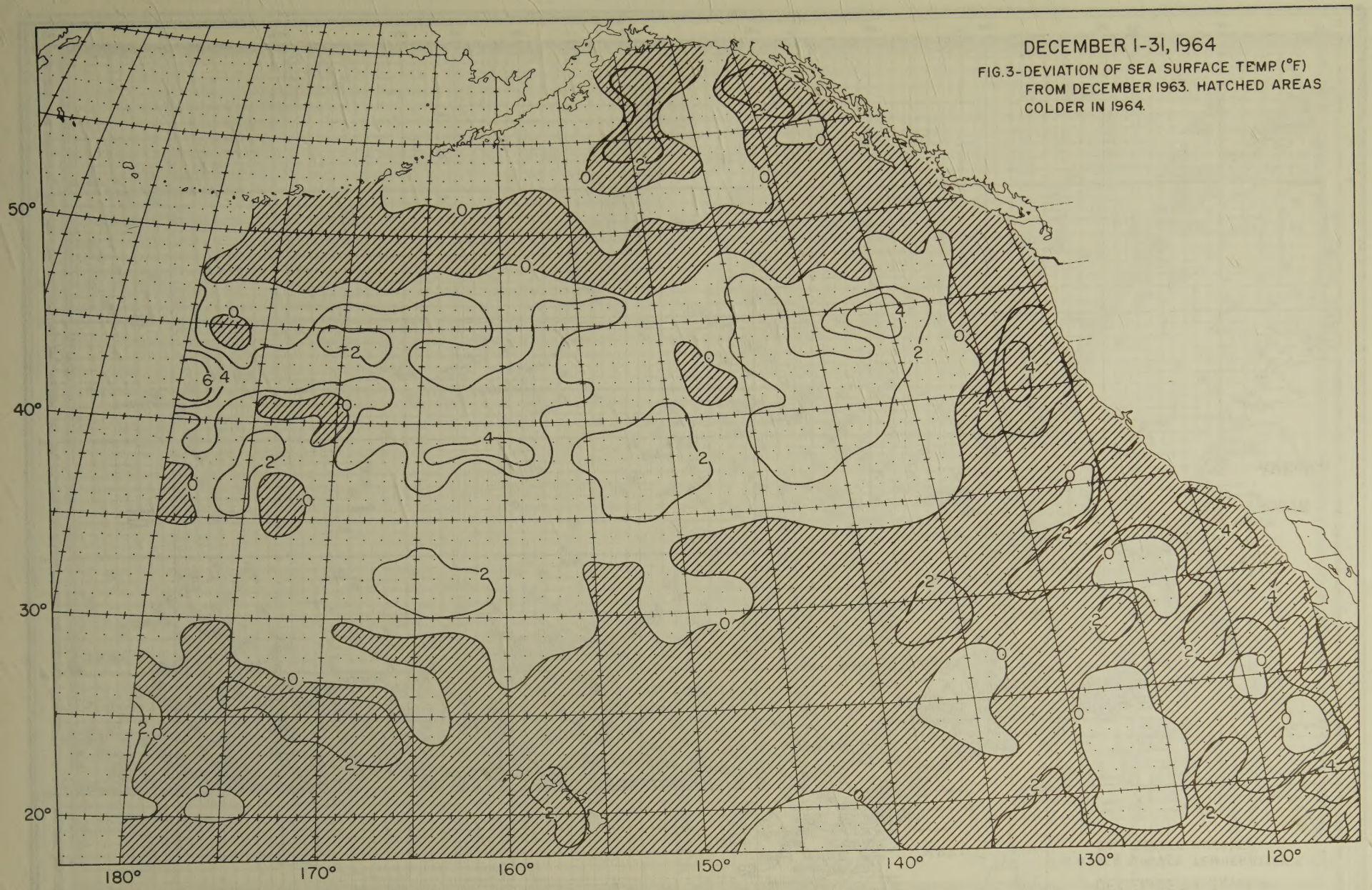
Figure 5.-- Deviation of sea surface temperatures (°F) December 1964-December 1963 by 1-degree squares. Shaded areas are colder than 1963.

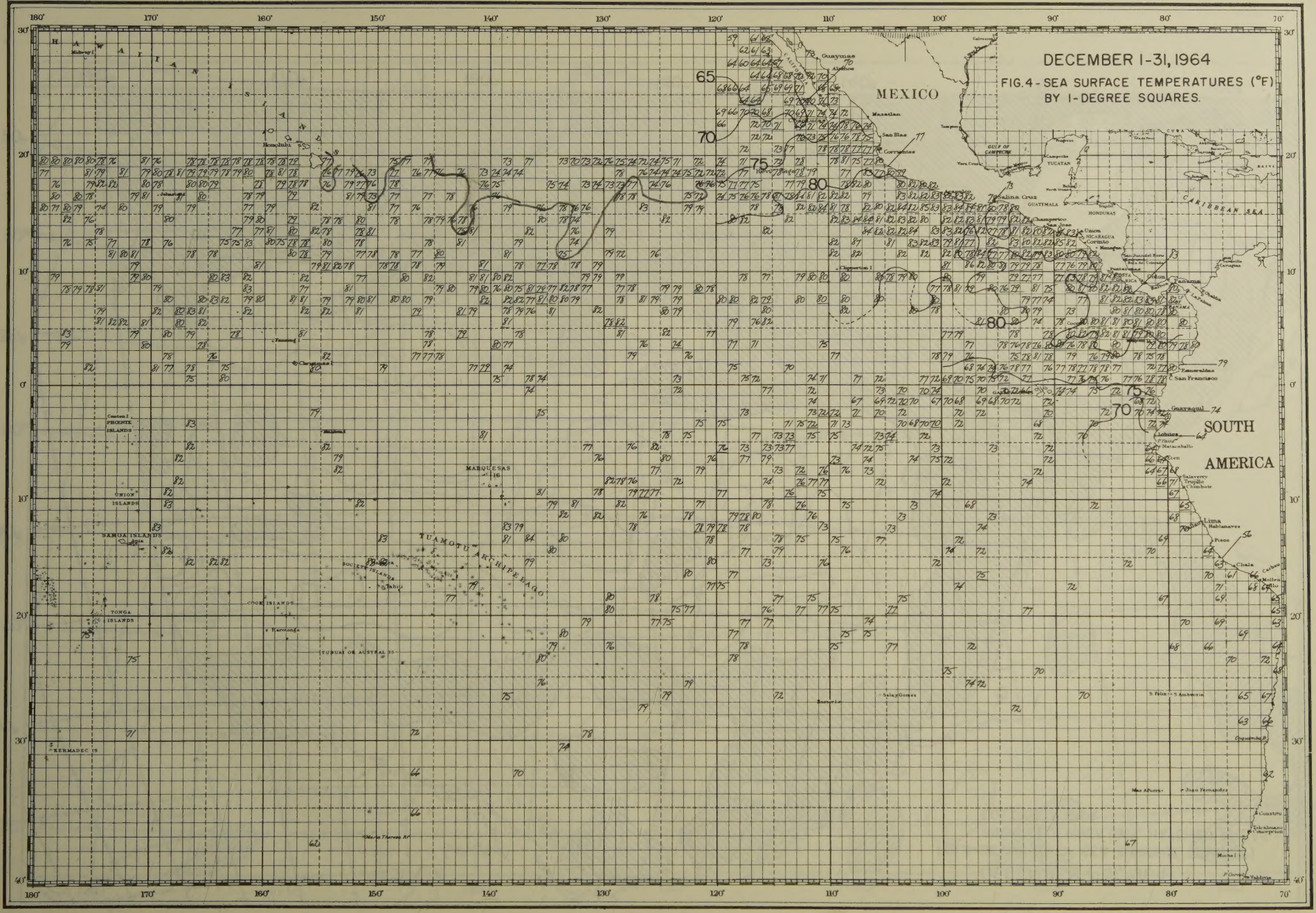
Figure 6.--Deviation of sea surface temperatures (°F) from 12-year mean (1947-1958) by 2-degree squares. Shaded areas are colder than 1963.

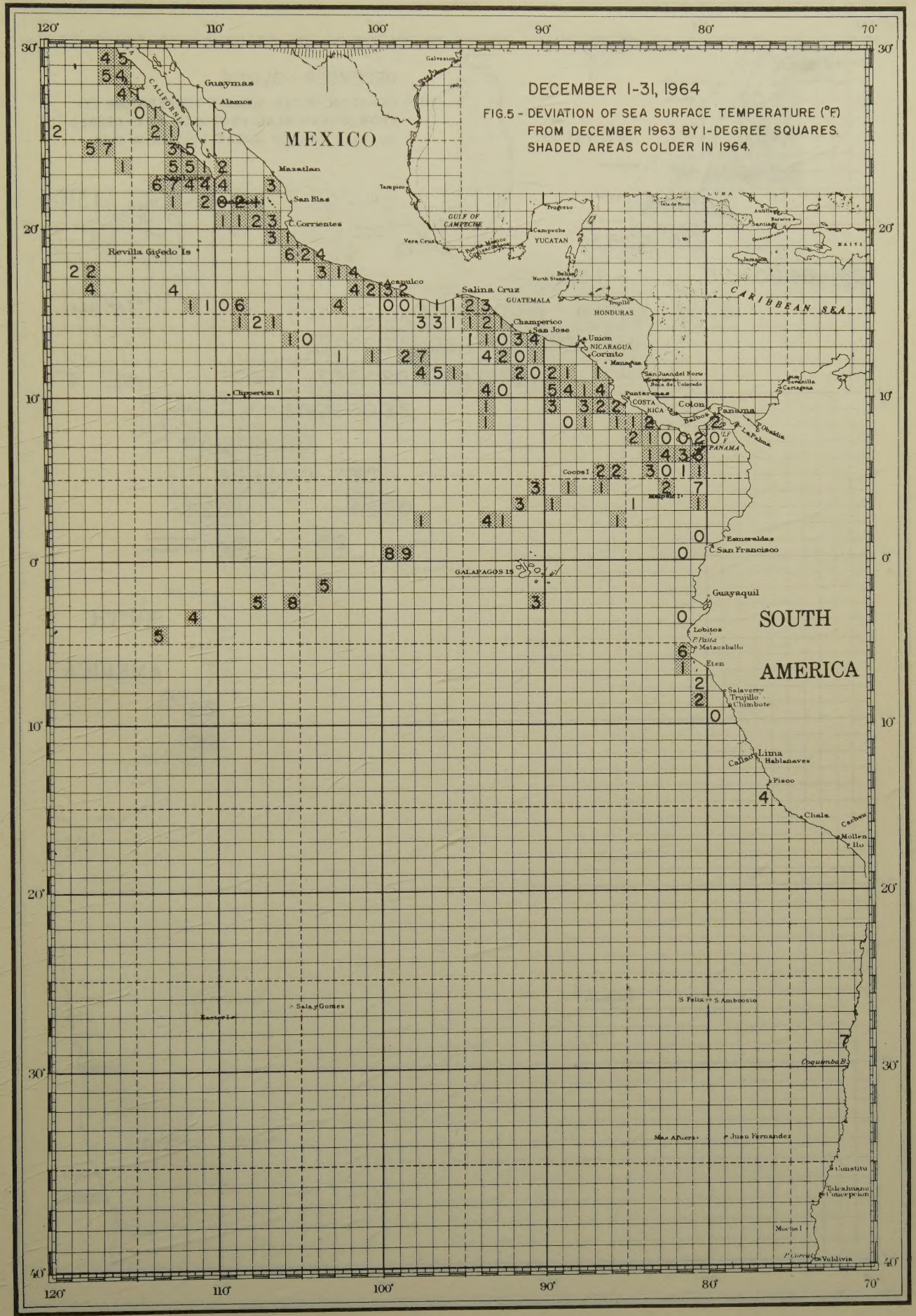
James A. Renner
Fishery Biologist (General)

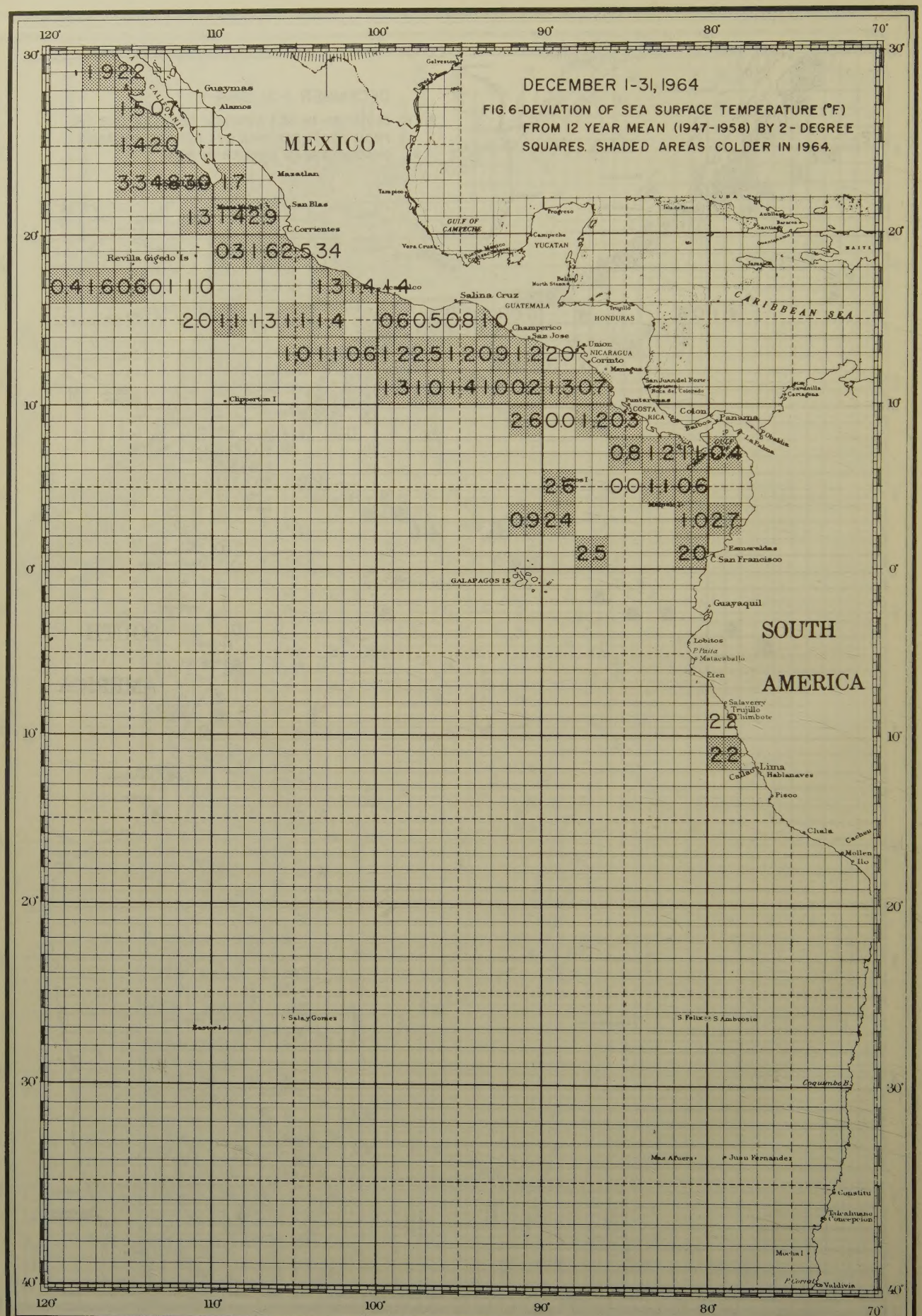

DECEMBER 1-31, 1964
FIG. 1- MEAN SEA SURFACE TEMPERATURE(°F)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


DECEMBER 1-31, 1964
FIG. 2 - DEVIATION OF SEA SURFACE TEMP. (°F) FROM LONG TERM MEAN. HATCHED AREAS COLDER IN 1964.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


DECEMBER 1-31, 1964
FIG. 3-DEVIATION OF SEA SURFACE TEMP. (°F) FROM DECEMBER 1963. HATCHED AREAS COLDER IN 1964.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


DECEMBER 1-31, 1964
FIG. 4 - SEA SURFACE TEMPERATURES (°F) BY 1-DEGREE SQUARES.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
HAWAIIAN ISLANDS
PHOENIX ISLANDS
UNION ISLANDS
SAMOA ISLANDS
TUAMOTU ARCHIPELAGO
SOCIETY ISLANDS
COOK ISLANDS
TONGA ISLANDS
MARQUESAS
KERMADEC IS
Honolulu
Tahiti
Rarotonga
Guayaquil
Lima
Panama
San Francisco
Acapulco
Salina Cruz
Champerico
Corinto
Buenaventura
Salaverry
Callao
Pisco
Chala
Arica
Iquique
Antofagasta
Juan Fernandez
Easter I
Valparaiso
Concepcion
Coquimbo
Mazatlan
San Blas
Manzanillo
Guaymas
Progreso
Belize
Puerto Limon
Cristobal
Balboa
Tumaco
Esmeraldas
Manta
Salaverry
Trujillo
Chimbote
Lobitos
Talara
Paita
Pisco
Mollendo
Arica
Iquique
Antofagasta
Caldera
Coquimbo
Valparaiso
Concepcion
Talcahuano
Corral
Constitucion
Juan Fernandez
Mas A Fuera
S. Felix
S. Ambrosio
Easter I
Galapagos
Guayaquil
Tumaco
Buenaventura
Esmeraldas
Manta
Salaverry
Callao
Pisco
Chala


DECEMBER 1-31, 1964
FIG.5 - DEVIATION OF SEA SURFACE TEMPERATURE (°F) FROM DECEMBER 1963 BY 1-DEGREE SQUARES. SHADED AREAS COLDER IN 1964.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CAMPECHE
GALAPAGOS IS
Guaymas
Alamos
Mazatlan
San Blas
Corrientes
Revilla Gigedo Is
Acapulco
Salina Cruz
GUATEMALA
HONDURAS
NICARAGUA
Champerico
San Jose
Cornito
Managua
Chipperton I
COSTA RICA
Colon
Panama
Esmeraldas
C. San Francisco
Guayaquil
Lobitos
Talara
Matacaballo
Eten
Salaverry
Trujillo
Chimbote
Lima
Callao
Hablanaves
Pisco
Chala
Cachos
Mollen
Ilo
Sala y Gomez
S Felix
S Ambrosio
Juan Fernandez
Mas Afuera
Constitu
Talcahuano
Concepcion
Mocha I
Valdivia
Coquimbo
Progreso
Tampico
Vera Cruz
Campeche
YUCATAN
Belize
North Stann
Galveston
CUBA
JAMAICA
HAITI
Santiago
Barranco
Guantanamo
Tela de Pinos
Trujillo
Puerto Limon
Cartagena
Sabanilla
San Juan del Norte
Punta Arenas
Rio Coco
Rio Colorado
Rio Frio
Rio Chagres
Rio Tuira
Rio Sixaola
Rio Grande
Rio Lempa
Rio Motagua
Rio Ulua
Rio Patuca
Rio Coatzacoalcos
Rio Grijalva
Rio Usumacinta
Rio Panuco
Rio Bravo
Rio Colorado
Rio Sinaloa
Rio Yaqui
Rio Mayo
Rio Fuerte
Rio Culiacan
Rio Grande de Santiago
Rio Balsas
Rio Papagayo
Rio Tehuantepec
Rio Suchiate
Rio Nazas
Rio Aguanaval
Rio Grande de Morelia
Rio Lerma
Rio Tecolutla
Rio Tuxpan
Rio Soto la Marina
Rio Pesquera
Rio Grande de Tamaulipas
Rio Conchos
Rio Salado
Rio Grande
Rio Pecos
Rio Nueces
Rio Colorado
Rio Guadalupe
Rio Mississippi
Rio Mobile
Rio Apalachicola
Rio Suwannee
Rio Withlacoochee
Rio Hillsborough
Rio Peace
Rio Caloosahatchee
Rio Miami
Rio Indian
Rio Hudson
Rio Delaware
Rio Susquehanna
Rio Potomac
Rio Rappahannock
Rio James
Rio Roanoke
Rio Neuse
Rio Cape Fear
Rio Pee Dee
Rio Santee
Rio Savannah
Rio Altamaha
Rio Satilla
Rio St Marys
Rio St Johns
Rio Kennebec
Rio Androscoggin
Rio Merrimack
Rio Connecticut
Rio Hudson
Rio Delaware
Rio Susquehanna
Rio Potomac
Rio Rappahannock
Rio James
Rio Roanoke
Rio Neuse
Rio Cape Fear
Rio Pee Dee
Rio Santee
Rio Savannah
Rio Altamaha
Rio Satilla
Rio St Marys
Rio St Johns
Rio Kennebec
Rio Androscoggin
Rio Merrimack
Rio Connecticut


DECEMBER 1-31, 1964
FIG. 6-DEVIATION OF SEA SURFACE TEMPERATURE (°F) FROM 12 YEAR MEAN (1947-1958) BY 2-DEGREE SQUARES. SHADED AREAS COLDER IN 1964.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CAMPECHE
YUCATAN
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
CUBA
HAITI
JAMAICA
GALAPAGOS IS
Guaymas
Alamos
Mazatlan
San Blas
C. Corrientes
Revilla Gigedo Is
Salina Cruz
Champerico
San Jose
La Union
Corinto
Managua
Chipperton I
Punta Arenas
Colon
Panama
Balboa
Esmeraldas
C. San Francisco
Guayaquil
Lobitos
P. Pariita
P. Matacaballo
Eten
Salaverry
Trujillo
Chimbote
Callao
Lima
Hablanaves
Pisco
Chala
Cocbeu
Mollendo
Ilo
Sala y Gomez
Easter I
S. Felix
S. Ambrosio
Coquimbo
Mas Afuera
Juan Fernandez
Constitu
Talcahuano
Concepcion
Mocha I
P. Corral
Valdivia
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
40°